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Documents a briefing on policy implications of recent Rand research on defense industrial surge capability. The briefing suggests that a methodology for assessing defense industrial surge capability should be based on good demand analysis, should provide a methodology for obtaining an overview of the industrial activity necessary for defense production, and should have a mechanism for gathering detailed information from potential problem industries. Such methodology was tested in the Rand research and is suggested as an alternative to the current Department of Defense Industrial Preparedness Planning (IPP) data-collection. (Author)

N-1021-AF

May 1979

A NEW APPROACH TO DEFENSE INDUSTRIAL PLANNING: BRIEFING DOCUMENTATION

Geneese G. Baumbusch

A Rand Note

prepared for the

United States Air Force

Rand
SANTA MONICA, CA. 90406

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PREFACE

The briefing documented in this note discusses policy implications of Rand research on the capability of the lower tiers of the defense industrial base. It was presented to the Rand Air Force Advisory Group and Board of Trustees in November 1978. The research culminating in this briefing was sponsored by Project AIR FORCE, and its substantive results are fully recorded in four Rand reports.*

Material in this note should be of interest to DoD staffs with responsibility for purchasing military equipment and for assessing the capability of industry to respond to increased demand for defense-related products. It should be particularly useful to the Directorate of Contracting and Acquisition Policy, the Directorate of Development and Programming, the Directorate of Operations and Readiness, and the Office of the Assistant Secretary of the Air Force (Research, Development and Logistics), Headquarters, United States Air Force, and Headquarters, Air Force Systems Command. It should also be of interest to the decisionmakers in the Office of the Secretary of Defense (particularly the Undersecretary of Defense/Research and Engineering and the Assistant Secretary of Defense/Manpower, Reserve Affairs, and Logistics) who have responsibility for the development, production, and support of military equipment to protect this nation's interests in time of crisis. Finally, it should be of interest to a wider policy community--agencies of the Executive Branch as well as the Congress--concerned with supporting defense procurement requirements in crises as well as in peacetime.

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*See Geneese G. Baumbusch and Alvin J. Harman, *Peacetime Adequacy of the Lower Tiers of the Defense Industrial Base*, R-2184/1-AF, November 1977; Geneese G. Baumbusch and Alvin J. Harman with David Dreyfuss and Arturo Gándara, *Appendixes to the Report on the Peacetime Adequacy of the Lower Tiers of the Defense Industrial Base: Case Studies of Major Systems*, R-2184/2-AF, November 1977; Geneese G. Baumbusch, Patricia D. Fleischauer, Alvin J. Harman, and Michael D. Miller, *Defense Industrial Planning for a Surge in Military Demand*, R-2360-AF, September 1978; and Michael D. Miller, *Measuring Industrial Adequacy for a Surge in Military Demand: An Input-Output Approach*, R-2281-AF, September 1978.

This note was prepared under the Project AIR FORCE study project "Concept Formulation and Exploratory Research (Acquisition)." It is a follow-on briefing to the now completed project "Industrial Base Study."

SUMMARY

Recently completed research on the *peacetime adequacy* of the lower tiers (subcontractors and suppliers) of the defense industrial base indicated that they have adequate capacity to meet the Air Force's peacetime requirements. Additional research on *surge capability* indicated that the lower tiers should be able to double defense-related output in a year's time. These results were duplicated in more detailed investigations of the semiconductor, optical instruments and lenses, and nonferrous forgings industries.

The methodology used in the study of surge capability consisted of a definition of demand, input-output analysis to obtain an overview of industrial supply, and a questionnaire for gathering detailed information from critical industries. It acquired information on the total potential of a given industry to contribute to surge production, and it did not request or encourage firms to assume availability of inputs that would give an inaccurate picture of surge capability. Using it, we were able to gather and analyze a considerable amount of useful information quite cheaply.

With some further refinement of surge demand definition, the methodology we tested will potentially offer DoD a better understanding of industrial capability and a better analytical foundation for setting policy toward the industrial base than has the current system of Industrial Preparedness Planning (IPP).

We believe our research suggests that IPP data gathering should be replaced by an OSD-conducted analytical effort similar to the one we tested in this research. Provision should also be made for the creation of service task forces to investigate potential problems more thoroughly and for the funding of appropriate remedial actions.

CHART 1

DEFENSE INDUSTRIAL PLANNING: A NEW APPROACH

Rand recently completed 2½ years of research on the capability of the lower tiers, the subcontractor and supplier portion of the defense industrial base, to meet both peacetime and surge defense requirements. By surge capability, we mean the capability of industry to increase defense-related output in the short run--no more than one year--under conditions that would probably involve some perception of crisis but would not be serious enough to result in a declaration of war or national emergency. In addition to its substantive findings, we believe our work suggests new policies for defense industry planning.

CHART 2

OUTLINE

- FRAMEWORK FOR POLICY ANALYSIS
- THE POLICY ISSUE: RISK REDUCTION
- POLICY IMPLEMENTATION

I shall first discuss the framework for this policy analysis, beginning with a brief review of the results of the peacetime adequacy phase of our study, followed by a somewhat more detailed discussion of the research design and results of the surge capability phase. Then, I shall move on to the important underlying policy issue--how to reduce the risks associated with industrial inadequacy in time of crisis. That is, although we cannot completely eliminate the risk of industrial inadequacy, what new policies might contribute to the goal of risk reduction? Finally, I shall discuss how these new policies might be implemented.

CHART 3

RAND'S DEFENSE INDUSTRIAL BASE STUDY

- THE HYPOTHESIS:
  - WIDESPREAD EROSION OF LOWER TIERS
- THE CONCLUSIONS:
  - PEACETIME
    - SUPPLIER BASE GENERALLY ADEQUATE
  - SURGE
    - SIGNIFICANT INCREASES IN PRODUCTION POSSIBLE IN ONE YEAR

We began the defense industrial base study in early 1976 at the request of the deputy Chief of Staff for Research and Development, Headquarters, United States Air Force. In asking Rand to begin this study, General Alton D. Slay, then DCS/RD, was responding to concerns that had been expressed by officials of what was formerly the Installations and Logistics component of the Office of the Secretary of Defense. In the post-Vietnam environment of reduced expenditures for defense procurement, firms were supposedly becoming unwilling to do defense business both because there was less business and because industry increasingly perceived this business as having undesirable characteristics, such as low profitability or too much red tape. According to the "erosion" hypothesis, defense buyers were not able to get some products at all, even in peacetime; they were paying monopoly prices for others; and they were, by this line of reasoning, at extreme risk if demand should accelerate.

These concerns about "erosion" of the industrial base were most acute with respect to the so-called lower tiers--defense subcontractors and suppliers or, more generally, the underlying industrial support structure that supplies products to firms doing final assembly of aircraft or missiles, for example. These concerns were less acute with respect to the upper tiers, partly because there was evidence of excess

capacity in the prime contractor sectors. The activities of the lower tiers are also less clearly visible to service buyers, leading some to hypothesize that such events as the Army's well-publicized problems in getting adequate supplies of castings for tank hulls and turrets were going to occur with increasing frequency in unpredictable places.

Our approach to examining the hypothesis of lower-tier erosion was first to address the issue of peacetime adequacy of the supplier base. In the first half of 1976, we surveyed 13 major Air Force weapon system programs then in process or recently completed. We concluded that the industrial base was generally adequate to meet the Air Force's peacetime requirements in the sense that enough firms were available to provide an initial base of suppliers at the outset of programs, to provide alternate suppliers if change became necessary or desirable during a program, and to give prime contractors or program offices the option to introduce competition into the procurement of various products. We did observe that some of the support industries had experienced recent turnover--both entry and exit of firms. Exit appeared to be more a natural market response to declining demand for various products than any consequence of perverse government buying practices, at least not such things as the low profitability that proponents of the erosion hypothesis had mentioned.*

In 1977, we turned our attention to the issue of surge capability--that is, the capability of these lower tiers to substantially increase their production of defense-related products in no more than a year. We concluded that most lower-tier industries could double their defense-related output within a year's time. These findings were supported by a detailed investigation of three lower-tier industrial sectors: the nonferrous forgings industry, the semiconductor industry, and the optical instruments and lenses industry.**

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*For a thorough discussion of the results of this phase of the research, see Baumbusch and Harman (1977); and Baumbusch et al. (1977).

**For a thorough discussion of results of this phase of the research, see Baumbusch et al. (1978); and Miller (1978).

CHART 4

CHARACTERISTICS OF AN EFFECTIVE DEFENSE INDUSTRIAL PLANNING PROCESS

DESIRABLE CHARACTERISTICS

- REFINED ESTIMATE(S) OF SURGE DEMAND
- INFORMATION ON TOTAL INDUSTRIAL CAPABILITY
  - EXTENT OF LOWER TIER INVOLVEMENT
  - INTERRELATIONSHIPS OF INDUSTRIAL ACTIVITY
  - INSIGHT INTO WHETHER PEACETIME BUYING PRACTICES INHIBIT EXPANSION
  - POTENTIAL FOR ENTRY INTO DEFENSE MARKET
- REALISTIC ASSUMPTIONS
- RELIABLE INFORMATION AT LOW COST

Our briefly stated summary of issues of surge capability probably raises more questions than it answers, but before I provide more detail about our findings, I would like to discuss desirable characteristics in a system for gathering and analyzing data about defense industrial capability--a system that would provide information useful for the goal of *risk reduction*. This list of characteristics may be compared with the Industrial Preparedness Planning program (IPP), the system the DoD has been using to "plan" industrial capability.

CHART 4-A

CHARACTERISTICS OF AN EFFECTIVE DEFENSE INDUSTRIAL PLANNING PROCESS

DESIRABLE CHARACTERISTICS	IPP
• REFINED ESTIMATE(S) OF SURGE DEMAND	NO
• INFORMATION ON TOTAL INDUSTRIAL CAPABILITY	NO
– EXTENT OF LOWER TIER INVOLVEMENT	NO
– INTERRELATIONSHIPS OF INDUSTRIAL ACTIVITY	NO
– INSIGHT INTO WHETHER PEACETIME BUYING PRACTICES INHIBIT EXPANSION	NO
– POTENTIAL FOR ENTRY INTO DEFENSE MARKET	NO
• REALISTIC ASSUMPTIONS	NO
• RELIABLE INFORMATION AT LOW COST	NO

It would be desirable to have a planning process based on some intelligent estimates of what crisis demand is likely to be, particularly as it relates to surge. Although information on use rates, repair times, etc., has played a part in the selection of items for IPP planning for mobilization, a reasoned, generally acceptable definition or definitions of surge remains elusive.

Such a system would ideally provide information on total capability potentially available for defense production. This kind of information has a number of sub-elements. A data gathering system should yield information about the extent of lower-tier involvement--the view all the way down the chain in the production process of any given product. IPP as practiced in recent years gathers data on end products and provides a very little insight into lower-tier industrial activity involved in the production of a given product.

Related to this need for insight into the activities *down* the tiers is the need for information cutting *across* various industries. What will happen in lower-tier industries when demands are simultaneously increased for various end products? What will happen, for example, to lower-tier electronics sectors if there is increased demand

for both missiles *and* radios simultaneously? Again, IPP has not been particularly useful for answering these kinds of questions because it gathers data on the individual end products of each of the services.

Another element is finding out whether the way business is typically done in peacetime will inhibit current defense producers from expanding their output in a crisis and make it unnecessarily difficult for new firms to enter. IPP simply assumes that we will do "business as usual".

The provision of data on total industrial capability should also involve some information about the potential for firms not currently doing defense business to enter the market, should demand accelerate and these firms be needed to contribute to crisis production. Again IPP focuses only on the current suppliers of individual defense end products.

Any system of gathering information about industrial capability should not either require or encourage firms to make unrealistic assumptions about availability of inputs to the production process. The IPP process of gathering data on end products has led participating firms to routinely assume that critical inputs (parts, capable equipment, materials, etc.) would be available.

An effective defense industrial planning system should provide a considerable amount of useful information for a small expenditure of DoD's scarce resources. Information on exactly how much money is spent on the current IPP program is hard to obtain, partly because contractor participation is reimbursed through overhead accounts. However, because the planning data obtained are not very reliable for the reasons above, IPP is not cost effective.

These characteristics involve good demand analysis and then good analysis of the capability of the supply side of the marketplace to meet that demand.

CHART 5

DEMAND ANALYSIS

- DEFINE CRISIS CHARACTERISTICS
  - WARNING TIME
  - POLITICAL CONSTRAINTS
  - INTENSITY
  - DURATION
  - U.S. MILITARY RECOVERY TIME

	Types of Equipment Required		
Some Possible Combinations	Whole Systems	Spares, Replacements and Support Systems	Munitions
Short warning / modest political constraints / high intensity / short duration		√	√
Moderate warning / serious political constraints / moderate intensity / long duration	√	√	√

Our effort to test a new approach to defense industrial planning was first to get some notion of what demand might be in a surge situation. We asked at the outset for some fairly detailed demand estimates. Because none was provided, we tried to identify a set of characteristics that would be common to any surge. We then analyzed several combinations of characteristics to identify various mixes of products required from the industrial base. In a brief, very intense conflict, for example, equipment from the Spares and Replacements and Munitions categories would obviously be needed in large quantities. In these circumstances the timing of the actual conflict would probably be too short to permit new production of Whole Systems, although the industrial base's ability to increase production of Whole Systems would be important to determining the length of U.S. military recovery time--the time it took to rebuild inventories to some pre-conflict or other desired level.*

*Depending on the nature and location of such a hypothetical conflict (e.g., conventional NATO war in Europe), the United States might declare a national emergency and undertake full-scale mobilization. Because we limited our investigation to situations not involving a declaration of national emergency, our estimates of industrial surge capability *understate* industry's potential in a declared emergency.

In a situation that is less intense and somewhat longer, equipment in the Spares and Replacements and Munitions categories would again be very important; but, at least in certain cases, production of new Whole Systems might be feasible.

What we learned from this admittedly crude demand analysis is that in almost any conceivable surge situation, production in the Spares and Replacements and Munitions categories is going to be very important; but Whole Systems production capability might be needed for immediate use and, in any event, it would be important to U.S. military recovery.

CHART 6

SUPPLY ANALYSIS — OVERVIEW OF INDUSTRY

- IDENTIFICATION OF SECTORS VITAL TO DEFENSE PRODUCTION
  - 13 CRITICAL DEFENSE INDUSTRIES
    - 4 WHOLE SYSTEMS
    - 5 SPARES, REPLACEMENTS, AND SUPPORT SYSTEMS
    - 4 MUNITIONS
  - 86 LOWER-TIER DEFENSE-RELATED INDUSTRIES
- CONCEPTUAL FRAMEWORK FOR MEASUREMENT OF INDUSTRIAL CAPABILITY
  - INPUT-OUTPUT ANALYSIS
  - PROJECTED INCREASES IN DEMAND
  - COMPARISON WITH CAPACITY UTILIZATION DATA

To understand how the U.S. economy functions to produce products in the three broad categories of equipment, we used a Department of Commerce 367-sector breakdown of U.S. industry to identify 13 industries that produced products in the three defense groups: Whole Systems, Spares and Replacements, and Munitions.* Then we looked at the remaining 354 sectors to determine which of these sectors are the important lower-tier sectors providing products to the 13 critical defense industries, and the rest of our analysis concentrated on understanding the interactions between the 13 and their 86 lower-tier suppliers.

We chose the technique of input-output analysis for a conceptual framework for understanding these relationships. Input-output techniques would enable us to determine for every dollar's worth of delivery from the aircraft sector (for example), the productive activity,

*The 13 industries are: Whole Systems--Complete Guided Missiles, Tanks and Tank Components, Aircraft, Shipbuilding and Repairing; Spares and Replacements--Sighting and Fire Control Equipment, Radio/TV Communication Equipment, Aircraft Engines and Parts, Aircraft Propellers and Parts, Miscellaneous Aircraft Equipment; Munitions--Non-Small Arms Ammunition, Small Arms, Small Arms Ammunition, Miscellaneous Ordnance and Accessories.

also measured in dollars, required all through the tiers in the production process. In the absence of specific estimates of increases in demand for various products in a surge situation, we simply took a parametric approach and assumed an across-the-board 100 percent increase in demand from 1975 levels (the most recent data available) on each of the 13 critical defense sectors. Then we observed what percent increase in output was required from each of the 86 lower-tier industries to support the doubling of production in each of the 13 critical defense industries. Having determined this, we compared these percentages with Census Bureau data on capacity utilization in each of the 86 lower-tier industries and were able to reach the crude conclusion that all but one of the 86 industries can increase its defense-related output enough to support the doubling of production in each of the 13 critical defense industries.*

This obviously rough measure is based on information on capacity utilization that becomes dated very quickly and on the questionable assumption that all unutilized capacity in a given industry could be used for defense purposes. What we really need here is some means for doing more in-depth investigation of industries that might potentially have problems.

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*For more details of this analysis, see Miller (1978), Sections II and IV.

CHART 7

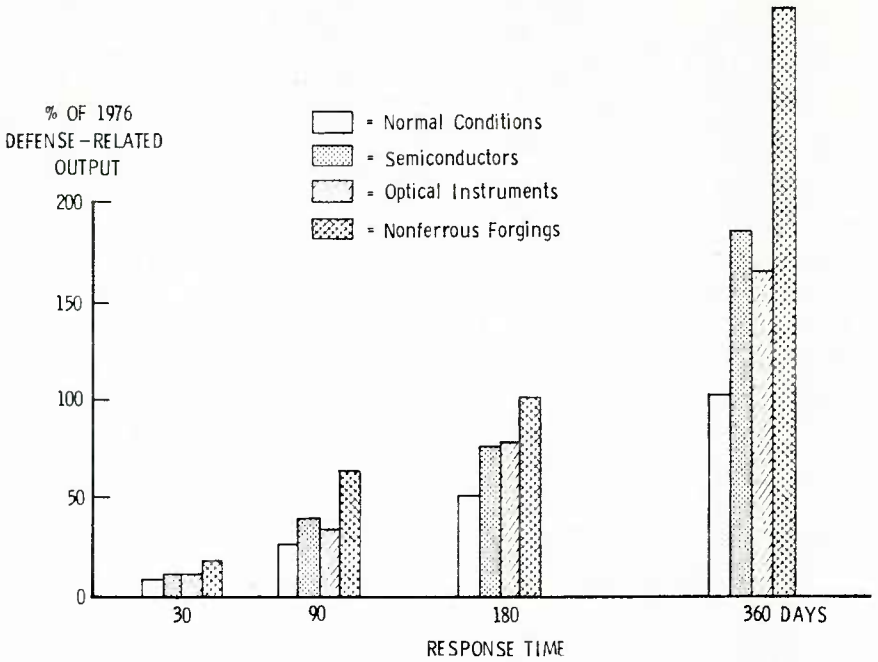
SUPPLY ANALYSIS — SELECTIVE SECTORAL STUDIES

- HOW MUCH COULD INDUSTRY INCREASE DEFENSE PRODUCTION?
- HOW WOULD INDUSTRY ACHIEVE INCREASES?
- WHAT WOULD BE THE MOST SERIOUS CONSTRAINTS?

For this second step in our supply analysis, we designed a questionnaire that could be used selectively in potential problem industries. The questionnaire provided information that enabled us to answer what we believe to be the three critical questions regarding industry's ability to surge production--how much? how? and what would be the most serious problems? We tested this questionnaire on three sectors of industry: the nonferrous forgings industry, the semiconductor industry, and the optical instruments and lenses industry.

CHART 8

"SURGE" POTENTIAL OF CURRENT DEFENSE PRODUCERS



The information contained in the next four charts illustrates the answers we got to these three critical questions.* First, as far as the *how much* is concerned, we asked firms in each of the industries engaged in defense production to tell us how much they could increase their defense-related output in response to surge demand. The bar at the left of each group represents normal production in each of the given periods.** As we would expect, in each of the three industries there is little capability in the short run (the 30-day period) to increase production much. But as we move toward the half-year mark, the firms in each of the industries believe that they could be producing considerably more than they did in 1976, base-year peacetime conditions.

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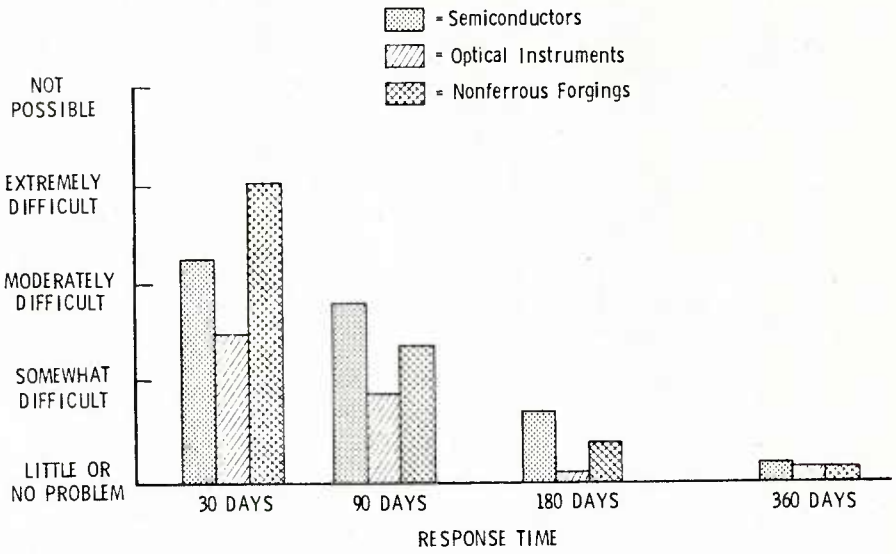
*For the complete presentation of our results see Baumbusch et al. (1978), Section V.

**The "normal" bars are based on an assumption of a constant rate of production yielding 8 percent of total annual output in 30 days, 25 percent in 90 days, 50 percent in 180 days, and 100 percent in 360 days.

CHART 9

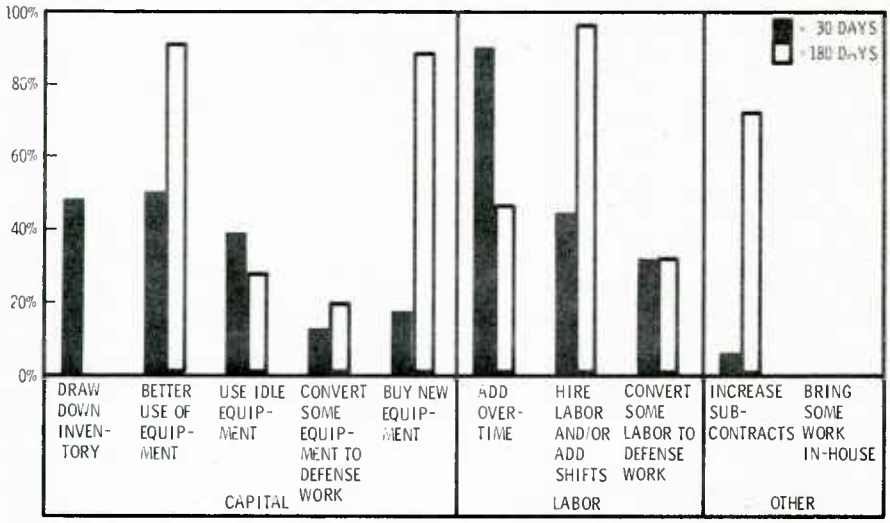
"SURGE" POTENTIAL OF FIRMS NOT CURRENTLY IN DEFENSE BUSINESS



We also asked firms in each of the industries that were *not* currently doing defense business, again as of 1976, to give us a qualitative evaluation of how difficult it would be in the various time periods for them to undertake some defense production in response to surge demand. Their qualitative responses parallel the quantitative ones we received from the current defense producers. It would be quite difficult for firms in all three industries to undertake any defense production in the very short run--30 days. But again, as we move toward the six-month mark, these firms believed it would be possible for them to undertake some defense production if they were asked. This is admittedly qualitative information only, but it gives some insight into the potential for entry of new firms when demand is high. It also provides information that is unavailable from IPP, which is not designed to systematically take account of the potential contributions of noncurrent defense producers.

CHART 10

MEANS BY WHICH SEMICONDUCTOR INDUSTRY WOULD RESPOND TO SURGE



With respect to the *how*, we asked current defense producer firms in each of the industries to tell us how various inputs to their production process would be used as they responded to defense surge demands.* This chart summarizes the responses we got from the semiconductor industry for the 30- and the 180-day period. We chose these two periods because they represent the differences that time would make in terms of the utilization of various inputs.** The numbers on the vertical axis represent the percentages of surge-related output that would involve use of each one of these inputs to some degree. For example, in the 30-day period firms in this industry report that about half of the value in dollars of the surge output would be dependent to some degree on their ability to draw down inventory. As we would expect, none of the firms reported relying on inventory drawn down to contribute to surge in the 180-day period.

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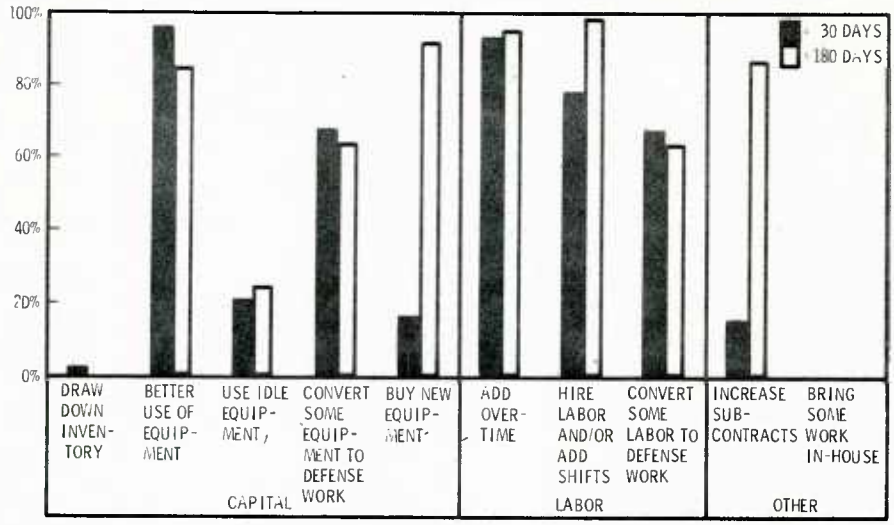
*This information also provided a cross-check on the validity of the *how much* question. See Baumbusch et al. (1978), Section V, and Appendixes A and B.

**See Baumbusch et al. (1978), Section V, for the complete presentation of information for all four periods.

Several interesting things about the information here relate to the importance of being able to obtain additional inputs of labor and new equipment. In the 180-day period, these firms estimate that something like 90 percent of their surge output would depend to some degree on use of new equipment. This projection was made without any assumption that the DoD would provide for standby supplies of equipment. We also see the importance of additional inputs of labor in both periods.

CHART 11

MEANS BY WHICH OPTICAL INDUSTRY WOULD RESPOND TO SURGE



To take the optical instruments industry as a second example, again we see in the 180-day period that the surge-related output would depend to some degree on new equipment. In this industry, labor is an even more critical component, and the availability of adequate supplies of it becomes particularly important. From some open-ended questioning of the current and noncurrent producers in the optical instruments industry we found out that much of their requirement for additional labor was for workers with very specialized skills.

Contrary to recent IPP practice, firms responding to our questions were neither directed nor in any way encouraged to assume availability of any of these inputs. They were not required to assume that they must use existing plant and equipment in their attempts to achieve "surge" output increases, nor were they told to assume that just because "mobilization" conditions might prevail, they would have immediate access to adequate supplies of highly skilled labor available. The only assumption, that of nondeclared national emergency, was made in the interests of getting a conservative assessment of industrial capability.

In addition, these responses provide indirect evidence regarding the answer to the third question about the most critical problems for firms in achieving increases in their defense-related output or, in the case of the noncurrent producers, in undertaking some defense production. When we did asked the firms to indicate what they believed the biggest potential constraints would be to their achieving the predicted increases or to getting into the business, they overwhelmingly told us that it would be their ability to get additional equipment and, particularly, skilled labor. Problems with access to adequate supplies of various intermediate goods or with purported low profitability of defense contracting were mentioned occasionally, but they were of secondary importance to the availability of capital and labor.

CHART 12

COMPARISON OF APPROACHES TO DEFENSE INDUSTRIAL PLANNING

DESIRABLE CHARACTERISTICS	IPP	RAND-TESTED PROCESS
• REFINED ESTIMATE(S) OF SURGE DEMAND	NO	?
• INFORMATION ON TOTAL INDUSTRIAL CAPABILITY	NO	YES
– EXTENT OF LOWER TIER INVOLVEMENT	NO	YES
– INTERRELATIONSHIPS OF INDUSTRIAL ACTIVITY	NO	YES
– INSIGHT INTO WHETHER PEACETIME BUYING PRACTICES INHIBIT EXPANSION	NO	YES
– POTENTIAL FOR ENTRY INTO DEFENSE MARKET	NO	YES
• REALISTIC ASSUMPTIONS	NO	YES
• RELIABLE INFORMATION AT LOW COST	NO	PROBABLY

Having described the approach to defense industrial planning assessment that we tested in this research, we can now compare its characteristics with those of the IPP system. We recognize that our approach to estimating surge demand is imprecise and needs to be refined; however, it was useful for getting some notion of how increases in defense requirements in a surge situation would affect various industries. In general, progress is being made in demand definition within the DoD.

The approach we tested is particularly useful for providing information on total industrial capability. Our research on both the peacetime adequacy and the surge capability of the lower tiers indicates that the DoD should try to lower barriers to entry into the defense marketplace.* The defense market should be a place that firms can flow through, a place that they can move into fairly easily when demands are high but not become a burden on DoD's scarce resources when demands are lower. One way to lower barriers is to make defense business less different from other types of business, both in an

*See Baumbusch and Harman (1977), Sections III, IV, and V; and Baumbusch et al. (1978), Section V.

administrative and in a substantive sense. This is contrary to current conventional wisdom, which suggests DoD ought to be restricting entry by such actions as directing peacetime procurement to established suppliers. Our research indicates that such actions will raise prices in peacetime and that they probably will not have their intended effect in a surge because conditions external to the control of an individual firm--such as labor supply--are likely to be the critical determinants of whether surge is feasible.

Finally, it should be possible to conduct the kind of data collection and analysis effort we tested in this research for a very small expenditure of DoD's resources--a few percent of what is spent on IPP administrative costs alone.

CHART 13

POLICY OPTIONS FOR INSTITUTIONALIZING AN EFFECTIVE DEFENSE INDUSTRIAL PLANNING PROCESS

- OSD-DIRECTED, SERVICE CONDUCTED
- OSD CONDUCTED
- EXECUTIVE BRANCH, EXTERNAL TO DOD
  - OMB?
  - FEMA?

How could the kind of defense industrial assessment and planning process we tested in this research be substituted for the current IPP system? Each different approach obviously has some advantages and disadvantages. An OSD-directed service-conducted effort could use the existing IPP apparatus. However, that advantage is also probably its biggest disadvantage, because such an approach would guarantee no real change.

Another option is simply to make this an entirely OSD-conducted function. OSD has the perspective on demand that cuts across individual service lines. It would also be the appropriate location for what needs to be only a very small office, a group of five or six analysts, rather than a widely diffused organization with a large staff.

Still another possibility might be to do this kind of analytical work somewhere else in the Executive Branch, possibly in the Office of Management and Budget or the Federal Emergency Management Agency. Perhaps one advantage to the non-DoD approach is that certain analytical skills might be more readily available. But the disadvantage is that going outside the DoD moves too far away from the real organizational responsibility for providing military equipment in a crisis.

Of these three approaches, then, we believe that having an entirely OSD-conducted activity is the most desirable option.*

*In subsequent presentations of this briefing it has been suggested that the Joint Logistics Commanders would be an appropriate focal point for such an industrial assessment activity.

CHART 14

FOLLOW-THRU TO DEFENSE INDUSTRIAL PLANNING

- TASK FORCES FROM SERVICES TO IDENTIFY READINESS OPTIONS

  EXAMPLES
  - SUSPENSION OF SOME SPECIALIZED PRACTICES (NONFERROUS FORGINGS)
  - LABOR TRAINING PROGRAMS (OPTICAL INSTRUMENTS)

- FUNDED REMEDIAL ACTION IF NECESSARY

Suppose that a small office were created within OSD to do the kind of analysis we have described, and their activity uncovered potential problem areas in industry. To explore these potential problems in more depth, we would recommend moving back from the general to the specific, reinvolving the services through the creation of task forces to investigate whether there are real problems and to identify remedies. Readiness options here might mean several things. One might be simply to stockpile supplies of certain products. However, to consider just the subject of industrial readiness options, we can return to the information we gathered in our survey and use it to derive some hypothetical examples of possible industrial readiness options. For example, in the nonferrous forgings industry, production process times for defense products can run up to a year, a significant part of which is devoted to various testing and quality control procedures. According to the firms in this industry that responded to our survey, about five or six weeks' worth of those procedures are new requirements levied since the end of the Vietnam war. Industry representatives believe these requirements take time and have costs that are not worth their benefits. One option would be to review the need for these procedures and identify which could be suspended even in peacetime, but in any event would be candidates for prompt suspension in a surge.

Optical instruments industry firms repeatedly indicated the importance to surge production of access to adequate supplies of skilled labor. An option for this industry would be a labor training program to provide reserves of critical skills.

CHART 15

RECOMMENDATIONS

- SCRAP CURRENT IPP
- SUBSTITUTE NEW DEFENSE INDUSTRIAL PLANNING PROCESS
  - RESPONSIBILITY ASSIGNED TO OSD
  - USE OF RAND-TESTED METHODOLOGY
  - SERVICE PARTICIPATION FOR IDENTIFIED TROUBLE AREAS

Our work suggests that the current IPP system contributes very little to the goal of reducing risks of industrial inadequacy in time of crisis, and it should be eliminated. In its place we recommend substituting a new defense industrial planning process based on good demand analysis that cuts across individual service lines and estimates probable requirements in a surge situation. It would provide good supply analysis in the form of a methodology for getting an overview of all industrial activity as it relates to defense production, and it would selectively gather detailed information about industries and products where there may be potential problems.